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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/138,339 08/21/98 PRYOR

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EXAMINER

LM02/0621

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NELSON, A  
ART UNIT PAPER NUMBER

2775  
DATE MAILED:

06/21/00

*Handwritten number 5*

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
09/138,339

Applicant  
Pryor

Examiner  
Alecia Nelson

Group Art Unit  
2775



☒ Responsive to communication(s) filed on Aug 21, 1998

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-5 and 18-27 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-5 and 18-27 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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### **DETAILED ACTION**

1. The drawings filed on 08/21/98 are objected to because of problems addressed in the attached "Notice of Draftsperson's Patent Drawing Review," (see form PTO-948). Corrected drawings are required.

### ***Information Disclosure Statement***

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Specification***

3. The abstract of the disclosure is objected to because it should be written in one paragraph. Correction is required. See MPEP § 608.01(b).

4. The spacing of the lines of the specification is such as to make reading and entry of amendments difficult. New application papers with lines double spaced on good quality paper are required.

5. "Federally sponsored R and D statement" and "Microfiche Appendix (see page 2, lines 11-14) should be removed from the specification.

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6. It is assumed by the examiner that the incorporation by reference on page 2 of the specification is non-essential.

Appropriate correction to these matters is required.

***Claim Objections***

7. ***Claims 19, 20, 23, and 24*** are objected to because of the following informalities: **Claims 19 and 20** are both dependent upon **claim 20**, and **claims 23 and 24** are both dependent upon **claim 24**. For purposes of the rejection the examiner will assume that **claims 19 and 20** are dependent upon **claim 18**, and that **claims 23 and 24** are dependent upon **claim 22**. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. ***Claims 2, 4, and 19*** recites the limitation "member" in line 2 of **claims 2 and 4**, and line 1 of **claim 19**. ***Claim 18*** recites the limitation "object" in line 5 of the claim. There is insufficient antecedent basis for these limitation in the claims.

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***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. ***Claims 1 and 2*** are rejected under 35 U.S.C. 102(b) as being anticipated by Naoi et al. (U.S. Patent No. 5,459,793).

Naoi et al. teaches a motion analysis system, in which object (10) is to be analyzed by the usage of a color mark (12), a plurality of light sources (14), and a color TV camera (16). The color marker (12) is made of a colored paper so as to be able to distinguish it from the color of the black out curtain (22). The color marker (12) is attached to an arm, a knee, and the like for which motion analysis is required. The movement of the color marker (12) is detected by the color TV camera (16) (see column 3, lines 3-17). The motion analysis system of the disclosed embodiment is preferably used for measuring each position of a head of a golf-club and each position of the body of a golfer, and analyzing the movement of the golf-club and the body (see column 4, lines 51-59).

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. ***Claims 18, 22, 24, and 25*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Naoi et al..

With respect to **claims 18, 22, 24, and 25**, Naoi et al. teaches a motion analysis system, in which object (10) is to be analyzed by the usage of a color mark (12), a plurality of light sources (14), and a color TV camera (16). The color marker (12) is made of a colored paper so as to be able to distinguish it from the color of the black out curtain (22). The color marker (12) is attached to an arm, a knee, and the like for which motion analysis is required. The movement of the color marker (12) is detected by the color TV camera (16) (see column 3, lines 3-17). The color marker (12) is also formed by a spherical body or polygonal body and a high directivity light reflection member is attached to the surface (see column 4, lines 9-13). The motion analysis system of the disclosed embodiment is preferably used for measuring each position of a head of a golf-club and each position of the body of a golfer, and analyzing the movement of the golf-club and the body (see column 4, lines 51-59).

Naoi et al. fails to specifically teach detecting radiation reflected from the illumination field to create at least one TV image containing the image of the user. However Naoi et al. does teach displaying on a CRT the image of a moving golf-club (see column 6, lines 64-68). Naoi et al. also fails to teach usage of the detection device in 3-dimensions. However, it would be obvious to one

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having ordinary skill in the art to allow for a 3-D environment to give the user a more interactive environment.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention for the system to allow for display of the user as well as provide the user an image being displayed in 3-dimension to thereby allow for better interaction between the user and the device.

14. ***Claims 3-5, 19-21, 23, 26, and 27*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Naoi et al. in view of Engle (U.S. Patent No. 5,072,294).

With reference to **claims 3, 4, 19, and 23**, Naoi et al. teaches all that is needed as explained with reference to **claims 1, 18, and 22**. However Naoi et al. fails to teach that one of the datums is retro reflective.

Engle teaches a video motion analysis system (10) which includes a camera (14) for converting an image of a body (18) having a plurality of illuminated retro reflective markers (22) (see column 2, lines 51-55).

With respects to **claims 5, 20, and 21**, Naoi et al. teaches all that is needed as explained with reference to **claims 1 and 18**. However Naoi et al. fails to teach that the light source is a LED light source.

Engle teaches the usage of infrared light emitting diodes in a prior art detection system (see column 1, lines 27-31).

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With reference to **claims 26 and 27**, neither of the reference teach the usage of two cameras. However, the usage of two cameras is well known in the art of position detection.

Therefore it would have been obvious to one having ordinary skill in the art to combine the teaching of Engle with the teachings of Naoi et al. to thereby provided a motion analysis system that can detect movement and displacement by detection of colored markers placed on the object.

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

DiMatteo et al. (U.S. Patent No. 4,396,945) teaches a method of determining the position and orientation of an element in space.

Zimmerman et al. (U.S. Patent No. 4,988,981) is disclosed for generating control signals for the manipulation of virtual objects in a computer system.

16. Any response to this action should be mailed to: Commissioner of Patents and Trademarks Washington, D.C. 2023; or faxed to: (703) 308-9051, (for formal communications intended for entry) or: (703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT"). Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alecia D. Nelson whose telephone number is (703) 305-0143 between the hours of 8:00 a.m. and 5:00 p.m. on Monday thru Friday.

If attempts to reach the above examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras, can be reached at (703) 305-9720.



STEVEN J. SARAS  
SUPERVISORY PATENT EXAMINER  
GROUP 2700

adn/ADN  
May 19, 1999